



DEPARTMENT OF DEFENSE

Office of the Secretary

Record of Decision for the Final Construction and Demonstration of a Prototype Mobile Microreactor Environmental Impact Statement

AGENCY: Strategic Capabilities Office (SCO), Office of the Secretary, Department of Defense (DoD).

ACTION: Record of decision.

SUMMARY: The DoD, acting through the Strategic Capabilities Office (SCO), is issuing this Record of Decision (ROD) for the Final Construction and Demonstration of a Prototype Mobile Microreactor Environmental Impact Statement (Final EIS). SCO has decided to implement the Proposed Action (the preferred alternative) as described in the Final EIS. The Proposed Action is to fabricate the prototype mobile microreactor and reactor fuel at existing off-site commercial facilities and demonstrate the microreactor at the Department of Energy's (DOE's) Idaho National Laboratory (INL) Site. The analysis in the EIS demonstrates that implementing the Proposed Action would have small environmental consequences that would not require mitigation outside of practices required by regulations, permits, or agreements.

FOR FURTHER INFORMATION CONTACT: For information regarding the prototype mobile microreactor (Project Pele), the Final EIS, or the ROD, visit <https://www.mobilemicroreactoreis.com>; or contact Dr. Jeff Waksman, Program Manager; Phone: 703-812-1980; Mail: Strategic Capabilities Office, 1155 Defense Pentagon, Washington, DC 20301-1155; Email: PELE_NEPA@sco.mil.

SUPPLEMENTARY INFORMATION:

Background

Inherent dangers, logistical complexities, and costs of sustaining power demands using diesel generators at U.S. Military Forward Operating Bases, Remote Operating Bases, and

Expeditionary Bases constrain operations and fundamental strategic planning. Technologies under development, such as unmanned aerial vehicles, new radar systems, new weapon systems, and electrifying the non-tactical vehicle fleet, will require even greater energy demands. A Defense Science Board study recommended further engineering development and prototyping of very small modular reactors with an output of less than 10 megawatts of electrical power. Before this technology can be deployed, a prototype mobile microreactor must be tested to ensure it can meet DoD specifications and requirements.

Proposed Action

The Proposed Action fabricates, at off-site commercial facilities, a small, advanced gas-cooled microreactor capable of producing 1 to 5 megawatts of electrical power. Reactor fuel would be produced from DOE stockpiles of highly enriched uranium (HEU) located at the Y-12 National Security Complex in Oak Ridge, Tennessee, that would be converted from a metal to an oxide at the Nuclear Fuel Services (a subsidiary of BWX Technologies, Inc. [BWXT]) facility in Erwin, Tennessee, and down blended to high-assay low-enriched uranium (HALEU) and fabricated into tristructural isotropic (TRISO) reactor fuel at the BWXT facility in Lynchburg, Virginia. The Proposed Action would use DOE technical expertise and facilities at the INL Site to demonstrate the mobile microreactor capabilities.

Demonstration Activities at the INL Site

The proposed activities on the INL Site involve demonstrating that the proposed mobile microreactor can produce reliable electric power for an electrical grid that is separate from the public utility grid and that the mobile microreactor can be safely disassembled and transported. Activities at the INL Site include: receiving the mobile microreactor and reactor fuel at the Materials and Fuels Complex (MFC); fueling the mobile microreactor at the Transient Reactor Test Facility (TREAT) or Hot Fuel Examination Facility (HFEF); startup testing the mobile microreactor at MFC or the Critical Infrastructure Test Range Complex (CITRC); disassembling

and transporting the mobile microreactor from MFC to CITRC or at CITRC; assembling, operating, and disassembling the mobile microreactor at CITRC; transporting the disassembled mobile microreactor to temporary storage and temporarily placing it in storage at the Radioactive Scrap and Waste Facility (RSWF) or Outdoor Radioactive Storage Area (ORSA); and potentially conducting mobile microreactor and spent nuclear fuel post-irradiation examination (PIE) and disposition. Section 2.3 of the Final EIS details the evaluated activities.

Alternatives

The EIS evaluated a Proposed Action (the preferred alternative) and a No Action Alternative, which serves as a basis for comparison with the Proposed Action. The INL Site was identified as the preferred location based on siting requirements for the demonstration of the mobile microreactor. Other sites, including the Oak Ridge National Laboratory (ORNL), did not meet the required siting criteria. Specifically, other sites lacked sufficient supporting infrastructure. In particular, the ORNL site does not have an independent electrical distribution system that can be isolated from the commercial power grid. The demonstration requires an independent, isolable electrical distribution system. The program for demonstration of the mobile microreactor is intended to demonstrate its operation under a wide variety of operational conditions. Demonstration of all these capabilities in a controlled environment requires the ability to receive power from an existing electric grid, as well as dispatch mobile microreactor-generated power to an isolated and locally controlled distribution system. Therefore, ORNL was not considered for further analysis.

NEPA Process

The EIS and this ROD were prepared in accordance with the National Environmental Policy Act of 1969 (NEPA) and Council on Environmental Quality (CEQ) NEPA regulations (Title 40 of the Code of Federal Regulations [CFR] Parts 1500–1508). The DOE participated as a cooperating agency in preparing the EIS.

A Notice of Intent (NOI) to prepare an EIS was published in the Federal Register on March 2, 2020 (85 FR 12274). The public scoping period started with publication of the NOI in the Federal Register and was extended to April 30, 2020. All scoping comments were considered during development of the Draft EIS.

On September 24, 2021, the U.S. Environmental Protection Agency (EPA) published a Notice of Availability (NOA) in the Federal Register (86 FR 53054) announcing the availability of the Draft EIS and the start of a comment period with an end date of November 9, 2021. During the public comment period, Federal agencies, state and local governmental entities, Native American tribes, and members of the public were invited to submit comments via the project website, U.S. mail, or email. Additionally, SCO held two public hearings on October 20, 2021, at the Shoshone-Bannock Hotel and Event Center in Fort Hall, Idaho. The public hearings were webcast to offer more opportunities for public participation. In total, SCO received 43 comment documents containing 197 comments. All comments were considered during development of the Final EIS. On February 25, 2022, the EPA published an NOA in the Federal Register (87 FR 10784) announcing the availability of the Final EIS.

Potential Environmental Impacts

As described in the Final EIS, implementing the Proposed Action at the INL Site is expected to have small environmental consequences that would not substantially contribute to cumulative impacts. Except for the construction of two concrete pads and fencing, no land disturbing construction activities would be required for the Proposed Action. Therefore, the Proposed Action would have little or no impact on land resources, visual resources, noise, geology and soils, ecological resources, and cultural and paleontological resources. The analyses showed that there would be no significant impacts on air quality, water resources, socioeconomics, public and occupational health and safety, environmental justice, and transportation. The analysis showed that radiological and nonradiological hazard risks, as well as

the associated exposures to workers and the public, would be low and well within regulatory limits and guidelines established by the DOE and the EPA. Broadly, workers and members of the public are protected from exposure to radioactive material and hazardous chemicals by facility design and administrative procedures. The construction modifications to existing facilities at the INL Site would have no radiological impact on members of the public or workers. There are three phases of Project Pele demonstration that could result in radiological emissions: startup testing, operational testing, and post-irradiation examination prior to disposition of the mobile microreactor. The analysis showed that the annual radiological air emissions from the mobile microreactor during these phases are expected to be no more than the quantities emitted during normal INL Site operations, which, as stated previously, are well within regulatory and guidelines. As described in the Final EIS, the analysis of impacts is applicable to (i.e., bounds) whichever of the two candidate mobile microreactor designs is selected.

Environmentally Preferable Alternative

The environmentally preferable alternative is the No Action Alternative. Under the No Action Alternative, prototype mobile microreactor construction and demonstration would not occur, resulting in fewer impacts than under the Proposed Action. However, the No Action Alternative would not meet the purpose and need for construction and demonstration of a prototype mobile microreactor.

Comments on the Final Construction and Demonstration of a Prototype Mobile Reactor EIS

SCO posted the Final EIS and Comment Response Document on the project website <https://www.mobilemicroreactoreis.com> and EPA published a Notice of Availability in the Federal Register (87 FR 10784, February 25, 2022). In response to these Notices, SCO received seven (7) comments related to the Final EIS, including comments wanting to know more about the project, requests from individuals wanting to be added to the mailing list, and

comments expressing concerns with the potential impacts of the action. SCO considered all of these comments during the preparation of this ROD. SCO has concluded that none of the comments identified a need for further NEPA analysis.

Decision

Subject to the availability of appropriations, SCO's decision is to implement the Proposed Action (the preferred alternative) as described in the Final EIS. The final design determination by SCO is being made through a competitive down-select review process between the two designs and will be announced publicly through other official channels. As described in the Final EIS, the analysis of impacts is applicable to (i.e., bounds) whichever one of the two candidate mobile microreactor designs is selected. All facility options considered at the INL Site are reasonable and have similar environmental impacts; therefore, SCO is not making decisions related to the INL Site facilities options to be used to (1) conduct mobile microreactor core fueling and final assembly (HFEF or TREAT); (2) conduct mobile microreactor startup testing (MFC or CITRC); and (3) temporarily store the mobile microreactor (RSWF or ORSA). These facility options are all encompassed within the preferred alternative decision and were fully evaluated in the Final EIS. Selection of facility options will not substantially change the findings discussed in this ROD. As bounded by the applicable analysis of impacts within the Final EIS, SCO's selection of facilities for the demonstration will be informed by the final design determination.

Basis for the Decision

The Final EIS provided the SCO decision-maker with important information regarding potential environmental impacts of alternatives and options for satisfying the purpose and need. In addition to environmental information, SCO also considered public comments, statutory responsibilities, strategic objectives, technology needs, safeguards and security, cost, and schedule in its decision making.

Mitigation Measures

No potential adverse impacts were identified that would require additional mitigation measures beyond those required by regulations, permits, and agreements or achieved through design features or best management practices. However, if mitigation measures above and beyond those required by regulations, permits, and agreements are identified to reduce impacts during implementation, they would be developed, documented, and executed.

Signing Authority

This document of the DoD was signed on April 5, 2022, by Jay E. Dryer, Director, Strategic Capabilities Office, pursuant to delegated authority from the Secretary of Defense. The document with the original signature and date is maintained by DoD. For administrative purposes only, and in compliance with the requirements of the Office of the Federal Register, the undersigned DoD Federal Register Liaison Officer has been authorized to sign and submit the document in electronic format for publication as an official document of the DoD. The administrative process in no way alters the legal effect of this document upon publication in the Federal Register.

Dated: April 8, 2022.

Aaron T. Siegel,

Alternate OSD Federal Register Liaison Officer,

Department of Defense.